



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/058,324	01/30/2002	Wei-Fang Su	BHT/3129-65	7863

7590 03/15/2004

DOUGHERTY & TROXELL  
SUITE 1404  
5205 LEESBURG PIKE  
FALLS CHURCH, VA 22041

EXAMINER
----------

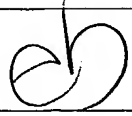
CHOI, LING SIU

ART UNIT	PAPER NUMBER
----------	--------------

1713

DATE MAILED: 03/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/058,324	Applicant(s) SU ET AL. 	
	Examiner Ling-Siu Choi	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☐ Claim(s) 11-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 11-24 is/are allowed.
- 6) ☐ Claim(s) 25-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01/30/02 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This Office Action is in response to the Amendment filed December 1, 2003. Claims 1-10 were canceled and claims 11-40 have been added, wherein claims 11-24 are drawn to a method to prepare an organic/inorganic hybrid material; claims 25-38 a composition of matter comprising an organic/inorganic hybrid material; claims 39-40 an article comprising an organic/inorganic hybrid material. Claim objections and claim rejection under 35 USC § 112 are removed.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 25-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arney et al. (US 6,329,058 B1).

*The present invention relates to an organic/inorganic hybrid material which is prepared by the steps of*

1	$M[OR^1-O-CO-C(R^2)=CR^3R^4]_n$ (hydrolysis) →	metal oxide nanoparticles
		acrylate monomers
wherein the metal oxide nanoparticles are well dispersed in the acrylate matrix		
2	metal oxide nanoparticles /acrylate monomers (free radical polymerization) →	organic/inorganic hybrid material
wherein the metal oxide nanoparticles are dispersed in a polyacrylate		

(summary of claim 11)

Arney et al. disclose an organic/inorganic hybrid material, wherein a titanium based oxide particle treated with a dispersing agent are highly dispersed in an organic material, the titanium based oxide particles being greater than about 4 nanometers and less than about 20 nanometers and is transparent (abstract; claim 1). Arney et al. further disclose that the organic/inorganic hybrid material is prepared by the steps of (a) hydrolysis and condensation of the dispersing agent on the titanium based oxide particle, wherein the dispersing agent can be methacrylic acid, **methacryloxyethyl** acetoacetate, or **3-acryloxypropyl**trimethoxysilane, (b) dispersion of the treated titanium based oxide in ethylenically unsaturated monomer such as acrylates or methacrylate to form a mixture, and then (c) free radical polymerization of the mixture to form the organic/inorganic hybrid material (col. 4, line 65-67; col. 5, lines 1-67; col. 6, line 1-25; col. 7, lines 3-19; col. 9, lines 33-39).

The difference between the present claims and the disclosure of Arney et al. is the requirement of a specific process to prepare the organic/inorganic hybrid material.

Art Unit: 1713

It is noted that the present claims are drawn to a product-by-process ones. The case law holds that "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product –by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the disclosure of Arney et al. and thereby obtain the present invention.

#### ***Allowable Subject Matter***

4. Claims 11-24 are allowable over the closest references: Arney et al. (US 6,329,058 B1).

Arney et al. disclose that the organic/inorganic hybrid material is prepared by the steps of (a) hydrolysis and condensation of the dispersing agent on the titanium based oxide particle, wherein the dispersing agent can be methacrylic acid, **methacryloxyethyl** acetoacetate, or **3-acryloxypropyl**trimethoxysilane, (b) dispersion of the treated titanium based oxide in ethylenically unsaturated monomer such as acrylates or methacrylate to form a mixture, and then (c) free radical polymerization of the mixture to form the organic/inorganic hybrid material (col. 4, line 65-67; col. 5, lines

Art Unit: 1713

1-67; col. 6, line 1-25; col. 7, lines 3-19; col. 9, lines 33-39). However, Arney et al. do not teach or fairly the specific process to prepare the organic/inorganic hybrid material.

### ***Response to the Applicants' Argument***

5. It is noted that claims 25-40 are drawn to a product-by-process ones. The case law holds that "The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Thus, claims 25-40 are rejected over Arney et al. (US 6,329,058 B1).

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

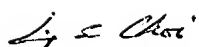
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

Art Unit: 1713

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is (571)272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on (571)272-1114.



Ling -Siu Choi

March 5, 2004